

additional sites as diverse as senior citizen clubs, community centers, housing projects, and police depots. At these "outreach posts" on the network, people who otherwise would have no access to advanced services have been able to enjoy their benefits.

In Newark, New Jersey, for example, the local elementary school, concerned about the health needs of its students, created a community network connecting the school, the low-income housing project where its students and their parents live, and the area's major teaching hospital. Through this information network, twenty families who formerly did not know each other and had little experience with computer technology can now communicate on-line with each other, with school personnel, and with doctors at the hospital about pressing educational and health concerns. This small-scale project serves as a model on how to use the school as a resource for a wider network designed to address difficult community problems.

In Charlotte, North Carolina, "Charlotte's Web" links more than 2,000 computers located in libraries, classrooms, and offices in 13 elementary schools, 8 middle schools, 7 high schools, and 4 administrative areas. During 1995, Charlotte's Web conducted Internet workshops for media specialists, teachers, and vocational directors. It designed an on-line school of the future and provided information to the community at unprecedented levels.

NTIA recommends that the Commission and the States, in implementing the universal service provisions of the 1996 Act, recognize that schools and libraries (like those in Newark and Charlotte) can serve their communities in ways that extend well beyond their traditional functions and operating hours. They can serve as backbones of wider community networks, thereby advancing the fundamental goal of expanding affordable access to advanced services. As the Commission anticipates in its Notice of Proposed Rulemaking on universal service, mechanisms to defray the costs of service connections for schools and libraries should be explored fully.^{24/} NTIA recommends, further, that the Commission and the States also acknowledge the potential of those institutions in fostering the development of more extensive community networks.

^{24/} Federal-State Joint Board on Universal Service, Notice of Proposed Rulemaking and Order Establishing Joint Board, CC Docket No. 96-45, FCC 96-93, ¶¶ 107-111 (released Mar. 8, 1996).

VI. CONCLUSION

For the foregoing reasons, NTIA respectfully requests that the Commission adopt the recommendations contained herein.

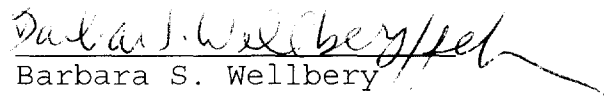
Respectfully submitted,

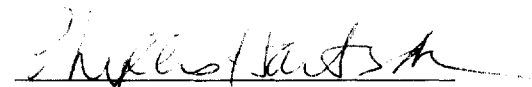
Larry Irving
Assistant Secretary for
Communications & Information

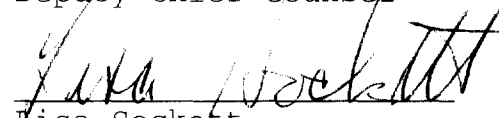
Bernadette McGuire-Rivera
Acting Deputy Assistant
Secretary

Kathryn C. Brown
Associate Administrator
Tim Sloan
James McConnaughey
Laverne James
Office of Policy Analysis
and Development

National Telecommunications
and Information Administration
U.S. Department of Commerce
Room 4717
14th Street and Constitution Ave., N.W.
Washington, D.C. 20230
(202) 482-1816


Barbara S. Wellbery
Chief Counsel


Phyllis Hartsock
Deputy Chief Counsel


Lisa Sockett
Attorney-Advisor

March 29, 1996

CERTIFICATE OF SERVICE

I, Cheryl A. Kinsey, do hereby certify that I have this 29th day of March, 1996, mailed by first class United States mail, postage prepaid, copies of the foregoing Reply Comments to the parties of record in this proceeding.

Cheryl A. Kinsey
Cheryl A. Kinsey

March 29, 1996

APPENDIX A

**FALLING THROUGH THE NET:
A SURVEY OF THE "HAVE NOTS" IN RURAL AND URBAN AMERICA**



U.S. DEPARTMENT OF COMMERCE
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary
Larry Irving, Assistant Secretary and
Administrator, National Telecommunications
and Information Administration
Washington D.C.

July 1995

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**Assistant Secretary for Communications and Information and
Administrator, National Telecommunications and Information Administration
Larry Irving**

**Acting Deputy Assistant Secretary for Communications and Information and
Acting Deputy Administrator,
National Telecommunications and Information Administration
Michele C. Farquhar**

**Acting Associate Administrator, NTIA, Office of Policy Analysis and Development
Joseph L. Gattuso**

PROJECT TEAM

**Jim McConnaughey
Cynthia Ann Nila
Tim Sloan**

PROJECT CONTRIBUTORS NTIA

**David Baxter, Intern
Rafael Alvarez, Intern
Michael Francesconi, Intern**

We wish to thank Greg Weyland, Steve Proudfoot, and Nat McKee of the U.S. Bureau of the Census, U.S. Department of Commerce, for their valuable contribution to this project.

FALLING THROUGH THE NET:

A SURVEY OF THE "HAVE NOTS" IN RURAL AND URBAN AMERICA

I. Background

At the core of U.S. telecommunications policy is the goal of "universal service" -- the idea that all Americans should have access to affordable telephone service. The most commonly used measure of the nation's success in achieving universal service is "telephone penetration" -- the percentage of all U.S. households that have a telephone on-premises.¹ There currently exist two principal sources for nationwide data on telephone penetration: First, the Current Population Survey ("CPS"), conducted by the U.S. Bureau of the Census, U.S. Department of Commerce, three times each year, includes questions on telephone subscription. Second, the Federal Communications Commission's ("FCC") Industry Analysis Division, within the Common Carrier Bureau, uses the CPS data to produce regular reports that provide a detailed demographic profile of telephone subscribership in the United States.

Although these statistics have provided an invaluable empirical foundation for the universal service debate, they are incomplete in at least two respects. The publicly-available CPS data does not include a geographic identifier for the households surveyed, primarily to preserve the confidentiality of household-specific information. As a result, the FCC's periodic reports cannot indicate how telephone subscribership varies geographically -- how, for example, telephone penetration in rural areas compares to penetration in suburbia or central cities.

"While a standard telephone line can be an individual's pathway to the riches of the Information Age, a personal computer and modem are rapidly becoming the keys to the vault."

Additionally, the subscribership data typically collected are limited to telephone service. There are legitimate questions about linking universal service solely to telephone service in a society where individuals' economic and social well-being increasingly depends on their ability to access, accumulate, and assimilate information. While a standard telephone line can be an individual's pathway to the riches of the Information Age, a personal computer and modem are rapidly becoming the keys to the vault. The robust growth recently experienced in Internet usage illustrates this promise as new and individual subscribers gravitate to on-line services.² This suggests a need to go beyond the traditional focus on telephone penetration as the barometer of this nation's progress toward universal service.

As the President's principal adviser on telecommunications policy, the Commerce Department's National Telecommunications and Information Administration ("NTIA") has taken two steps to fill these lacunae in the nation's universal service database. In July 1994, NTIA contracted with the Census Bureau to include questions on computer/modem ownership and usage in the CPS conducted in November 1994³. Further, after the CPS was concluded, NTIA asked Census to cross-tabulate the information gathered according to several specific variables (*i.e.*,

income, race, age, educational attainment, and region) and three geographic categories -- rural, urban, and central city.⁴

"In essence, information "have nots" are disproportionately found in this country's rural areas and its central cities."

By supplementing the existing database in these two critical respects, NTIA has developed a more expansive profile of universal service in America -- a portrait that includes computers and modems as well as telephones. The data in the attached tables provide fresh insights into the make-up of those who are not connected to the National Information Infrastructure ("NII"). More particularly, this research has explored the characteristics of the "have nots" in rural versus urban settings. In addition, the agency has gained new insights about the "information disadvantaged" in America's central cities, enabling policymakers for the first time to array these characteristics against rural and urban profiles. NTIA's examination reveals the usage habits of PC/modem users in accessing on-line services, an important input for policy development in the nascent Information Age.

A Closer Look. In essence, information "have nots" are disproportionately found in this country's rural areas and its central cities. While most recognize that poor people as a group have difficulties in connecting to the NII, less well-known is the fact that the lowest telephone penetration exists in central cities (Table-Chart 1). Concerning personal-computer penetration and the incidence of modems when computers are present in a household, however, no situation compares with the plight of the rural poor (Table-Charts 2 and 3).

An examination by race reveals that Native Americans (including American Indians, Aleuts, and Eskimos) in rural areas proportionately possess the fewest telephones, followed by rural Hispanics and rural Blacks (Table-Chart 4). Black households in central cities and particularly rural areas have the lowest percentages of PCs, with central city Hispanics also ranked low (Table-Chart 5). For those households with computers, Native Americans and Asians/Pacific Islanders registered the lowest position among those possessing modems (Table-Chart 6).

"On the basis of age, the single most seriously disadvantaged group consists of the youngest householders (under 25 years), particularly in rural areas."

On the basis of age, the single most seriously disadvantaged group consists of the youngest house-holders (under 25 years), particularly in rural areas. Overall, they rank lowest in telephone penetration and near the bottom relating to computers on-premises (Table-Chart 7). While senior citizens (55 years and older) -- regardless of the type of area -- surpass all other groups with respect to telephones, rural seniors rate lowest in computer penetration (see Table-Chart 8). Among households with

PCs, the youngest in rural areas also fare worst in modem penetration, followed by rural middle-aged and senior citizens (Table-Chart 9).

"NTIA's research reveals that many of the groups that are most disadvantaged in terms of absolute computer and modem penetration are the most enthusiastic users of on-line services that facilitate economic uplift and empowerment."

Generally, the less that one is educated, the lower the level of telephone, computer, and computer-household modem penetration. For a given level of education, however, central city households generally have the lowest penetration for both telephones and computers (Table-Charts 10 and 11), while rural households with computers consistently trail urban areas and central cities in terms of modem penetration (Table-Chart 12). Northeast central cities rank as the region with proportionately the most telephone and computer "have nots," followed by Southern, central cities and rural areas (Table-Charts 13-14). Modem penetration among computer households is lowest in rural areas, specifically in the West, then the Midwest and the South (Table-Chart 15).

Empowering the Information Disadvantaged. NTIA's research reveals that many of the groups that are most disadvantaged in terms of absolute computer and modem penetration are the most enthusiastic users of on-line services that facilitate economic uplift and empowerment. Low-income, minority, young, and less educated computer households in rural areas and central cities appear to be likely to engage actively in searching classified ads for employment, taking educational classes, and accessing government reports, on-line via modem (Table-Charts 16-30).

The Facts. More specifically, our findings point to the following information "have nots":

- **Poor in Central Cities and Rural Areas** -- Overall, the poorest households (incomes less than \$10,000) in central cities have the lowest telephone penetration (79.8%), followed by rural (81.6%) and urban (81.7%) areas. However, the rural poor are lowest in terms of computer penetration (4.5%) and -- among those households with computers -- modem (23.6%) penetration compared to central cities (7.6% and 43.9%) and urban areas (8.1% and 44.1%). Interestingly, among the most likely users of on-line classes are low-income users (\$10,000-\$14,999) in all areas (rural, central city, and urban).
- **Rural and Central City Minorities** -- Native American households (American Indians, Aleuts, and Eskimos) in rural areas have the lowest telephone penetration (75.5%). Rural Blacks have the lowest computer rates (6.4%), followed by central city Blacks (10.4%), central city Hispanics (10.5%), and urban Blacks (11.8%). Computer households composed of Asian/Pacific Islanders (26.7%) and Native Americans in rural areas have the least modem

penetration. Albeit Whites in urban areas have the highest telephone penetration (96.2%), an urban minority group (Asians or Pacific Islanders) leads all others in terms of computer penetration (39.5%). Regarding usage of on-line services, minority groups surpassed Whites in percentage of: classified ad searches -- urban and central city Native Americans (48.6%, 27.0%) and rural Hispanics (22.1%); taking courses -- rural Native Americans (51.7%) and rural Blacks (33.4%); and accessing government reports -- rural, urban, and central city Native Americans (45.4%, 46.4%, 41.8%) and rural Hispanics (52.8%).

- **Young and Old** -- Regarding telephone penetration, the youngest households (under 25 years) in rural areas trail all others. In terms of computers, rural senior citizens (55 years and older) possess the lowest penetration (11.9%), followed by seniors in central cities (12.0%) and the youngest in rural areas (12.3%). These two groups are also very low-ranking in terms of modem penetration as a percentage of computer households, all in rural areas: the youngest (27.4%), 45-54 years old (38.0%), and seniors (38.4%). Yet the youngest households with computers in rural areas rank number one in taking courses (21.7%) and second in classified ad searches (10.7%). The youngest householders in central city areas are also among the most likely to search classified ads (9.2%) and access government reports (21.0%) among on-line services.
- **Less-educated in Central Cities** -- With some exceptions (most notably, telephone penetration for the two lowest education categories), the fewer the number of years of education, the lower the telephone, computer, and computer-household modem penetration. For a given level of education, however, central city households generally have the lowest telephone and computer penetration rates, while rural households with computers consistently trail other areas with respect to modems. For those taking on-line courses, the highest degree of participation is among those with the lowest level of education (zero to eight years) located in urban (31.8%) and rural (24.3%) areas, and the lowest in the central cities (13.7%).
- **Northeast Central Cities and South** -- The lowest telephone and computer penetration is in Northeast central cities (89.5%, 16.4%), plus central city (91.2%, 22.0%) and rural (91.3%, 18.6%) areas in the South. Modem penetration among households with computers is lowest in rural areas in the West (35.3%), Midwest (37.2%), and South (40.7%). Yet households in the rural South (7.3%) and Northeast central cities (9.4%) are among the most active in searching classified ads, and the latter region in accessing government documents (20.9%). In taking classes, the rural South (22.3%) and central cities (20.3%) topped all other areas, followed by Northeast central cities (18.8%).

Where We Go From Here -- and Why . . . More work needs to be done to better assess the characteristics of these "have nots." For example, it is not clear whether the same low-income disadvantaged are also those who are minorities or the less educated or the young or old. Additional evidence is required for determining whether, e.g., mobility of households is an important determining factor of information exclusion within central cities or rural areas. Once superior profiles of telephone, computer, and on-line users are developed, then carefully targeted support programs can be implemented that will assure with high probability that those who need assistance in connecting to the NII will be able to do so. NTIA anticipates working in a collaborative effort with federal, state, and local policymakers, as appropriate, to meaningfully achieve these goals.

The broad policy implications for these findings should not be overlooked. By identifying those who are truly in need, policymakers can prudently and efficiently target support to these information disadvantaged. Only when this point is reached can all those who desire to access the NII be possibly accommodated. However, connectivity to all such households will not occur instantaneously; rather, there is a pivotal role to be assumed in the new electronic age by the traditional providers of information access for the general public – the public schools and libraries. These and other "community access centers" can provide, at least during an interim period, a means for electronic access to all those who might not otherwise have such access. Policy prescriptions that include public "safety nets" would complement the long-term strategy of hooking up all those households who want to be connected to the NII.

"... there is a pivotal role to be assumed in the new electronic age by the traditional providers of information access for the general public – the public schools and libraries. . . and other "community access centers". . ."

II. Methodology and Definitions

The tables and charts that follow draw upon the results of both the Computer Ownership/Usage Supplement and the November 1994 CPS.

Race and Origin. According to the U.S. Census Bureau, race is defined as a concept used by individuals as a self-identification of "biological stock." Such identifiers include White; Black; American Indian, Eskimo, or Aleut; and Asian or Pacific Islander.⁵ In addition to the race identifier, all respondents are asked if they classify themselves as Hispanic in origin, including "ancestry, nationality, group, lineage, or country of birth of the person or the person's parents or ancestors before their arrival in the United States." As a result, individuals of Hispanic origin can be of any race.

Most analyses of telephone penetration use race defined in terms of White, Black, and Other (including American Indian, Eskimo, Aleut, Asian, Pacific Islander,

and other) and Hispanic origin. The consequence of Census' racial description, and analyses based on this description, is a "double counting" for the various races and respondents who claim Hispanic origin. This may result in under representing the penetration figures for those races.⁶ To correct this problem, NTIA requested that Census "recode" the race definitions to exclude Hispanic data, thus creating new classifications. These include a separate category for Hispanic origin, and newly defined categories for White - non-Hispanic; Black - non-Hispanic; American Indian -, Eskimo -, and Aleut - non-Hispanic; Asian -, or, Pacific Islander - non- Hispanic; and other - non-Hispanic. NTIA strongly believes that by recoding the race tabulations, our analysis will present a clearer picture of the "haves" and "have nots."

Rural versus Urban and Central City Areas. The Census Bureau defines "urban" as designated areas comprised of all territory, population, and housing units of 2500 or more persons.⁷ "Rural" areas constitute territory, population and housing units not classified as urban; "places of less than 2500" persons and, what the Census Bureau refers to as, "not in places" (areas not part of or outside of designated Census areas).⁸

Our analysis also includes areas designated as "central city" areas or part(s) of a Metropolitan Statistical Area ("MSA") or Primary Metropolitan Statistical Area ("PMSA") that meet the standard of the "largest place," or places (based on population and other criteria) within that MSA or PMSA.⁹ There is no relation between data for central city and data for urban versus rural.

Endnotes

1. As of November 1994, telephone penetration in the U.S. was 93.8 percent. See Alexander Belinfante, Federal Communications Commission, Telephone Subscribership in the United States, Table 2 at 14 (April 1995).
2. Recent evidence accumulated by the University of Michigan Business School suggests that more than half of "Net" users subscribe through a private Internet access provider -- using their PCs and modems. Steve Lohr, Technology: On the Net; Out, Damned Geek! The Typical Web User is no Longer Packing a Pocket Protector, N.Y. Times, July 3, 1995, § 1, at 39. Moreover, a 1994-95 survey of 12,000 users conducted by the Interactive Services Association found that for the first time, consumers that have been on-line for a year or less will make up a majority of all on-line users by the end of 1995. Communications Daily, May 22, 1995.
3. The November, 1994, Current Population Survey reports data collected from a sample of 54,000 U.S. households.
4. See discussion infra part II, "Methodology and Definitions."
5. Also included is the "Other" category, which most often includes individuals of "multiracial, multiethnic, mixed, interracial, Wesort, or a Spanish/Hispanic origin group (such as Mexican, Cuban, or Puerto Rican)." Bureau of the Census, U.S. Dep't of Commerce, Current Population Survey Interview Manual Technical Documentation of the 1990 Census of Population and Housing, Summary Tape File 3, 5-6 (January 1994).
6. Although Black and other categories could be similarly affected, Census has found that most of the overlap occurs between the White and Hispanic categories.
7. However, the following places with 2500 or more persons are not considered "urban": "incorporated cities, villages, boroughs (except in Alaska and New York), and towns (except in the six New England States, New York, and Wisconsin), but excluding the rural portions of "extended cities" (e.g., Nashville, Tennessee, and Jacksonville, Florida, where the county and cities have merged). Bureau of the Census, U.S. Dep't of Commerce, Technical Documentation of the 1990 Census of Population and Housing: Summary Tape File 3 on CD-ROM, A-11 (May 1992).
8. Id. at A-8 - A-9.
9. Generally, MSAs are a collection of communities surrounding a large, or several large, population nucleus that share very strong economic and social links with that nucleus. Technical Documentation at A-8 - A-9.

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Table 1: Percent of U.S. Households with a Telephone
By Income
By Rural, Urban, and Central City Areas

	Rural	Urban	Central City
Less than \$10,000	81.6	81.7	79.8
\$10,000- \$14,999	89.5	91.3	91.2
\$15,000-\$19,999	93.2	93.4	91.0
\$20,000-\$24,999	93.0	95.3	93.7
\$25,000-\$34,999	97.8	97.0	96.8
\$35,000-\$49,999	98.6	98.3	98.2
\$50,000-\$74,999	99.1	99.1	98.6
\$75,000 or more	99.2	98.9	98.8

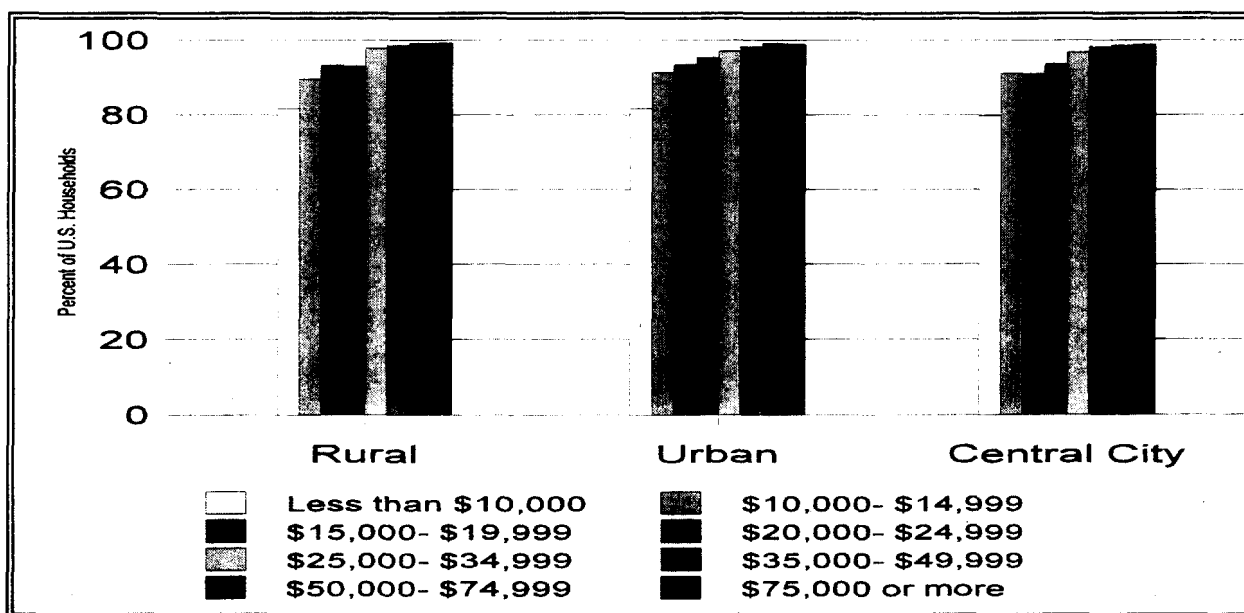


Chart 1

Source: National Telecommunications and Information Administration and U.S. Census Bureau, U.S. Department of Commerce, using November 1994 Current Population Survey and Computer Ownership/Usage Supplement.

Table 2: Percent of U.S. Households with a Computer
By Income
By Rural, Urban, and Central City Areas

	Rural	Urban	Central City
Less than \$10,000	4.5	8.1	7.6
\$10,000-\$14,999	7.0	9.1	9.3
\$15,000-\$19,999	11.0	12.6	13.0
\$20,000-\$24,999	15.7	15.9	16.3
\$25,000-\$34,999	18.1	22.0	21.1
\$35,000-\$49,999	32.7	34.9	34.7
\$50,000-\$74,999	46.0	48.4	47.4
\$75,000 or more	59.6	64.4	63.1

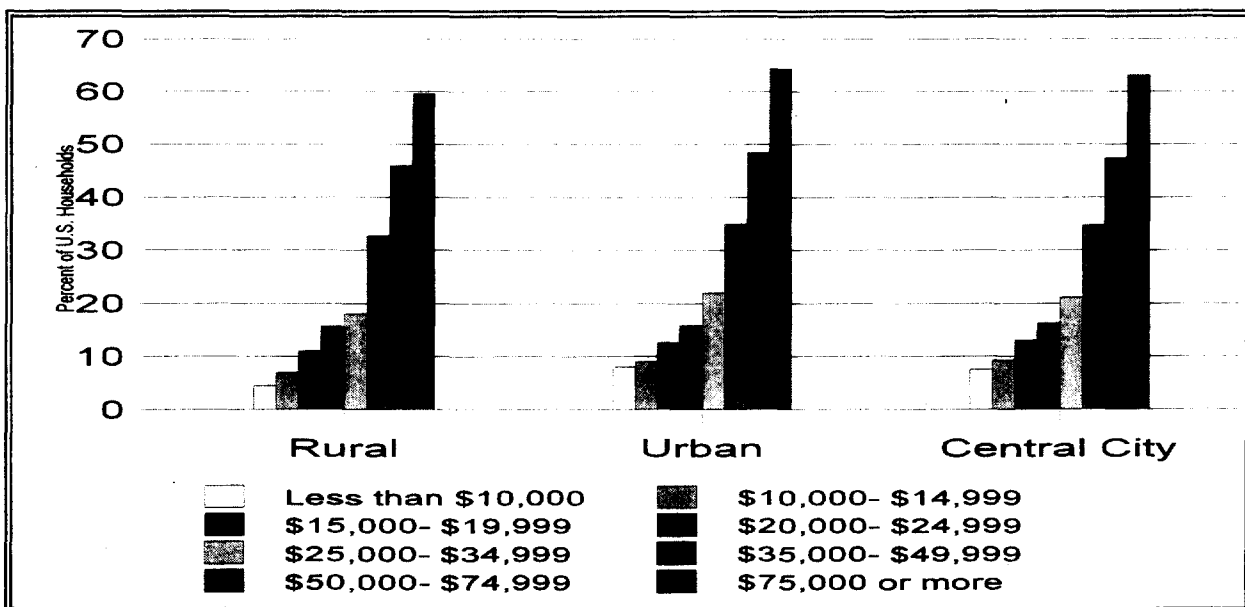


Chart 2

Source: National Telecommunications and Information Administration and U.S. Census Bureau, U.S. Department of Commerce, using November 1994 Current Population Survey and Computer Ownership/Usage Supplement.

**Table 3: Percent of U.S. Computer Households with a Modem
By Income
By Rural, Urban, and Central City Areas**

	Rural	Urban	Central City
Less than \$10,000	23.6	44.1	43.9
\$10,000-\$14,999	28.9	40.6	44.8
\$15,000-\$19,999	32.4	30.7	28.3
\$20,000-\$24,999	28.5	38.2	36.8
\$25,000-\$34,999	32.6	41.1	43.3
\$35,000-\$49,999	34.4	45.6	48.0
\$50,000-\$74,999	46.7	49.8	49.2
\$75,000 or more	52.2	58.1	56.4

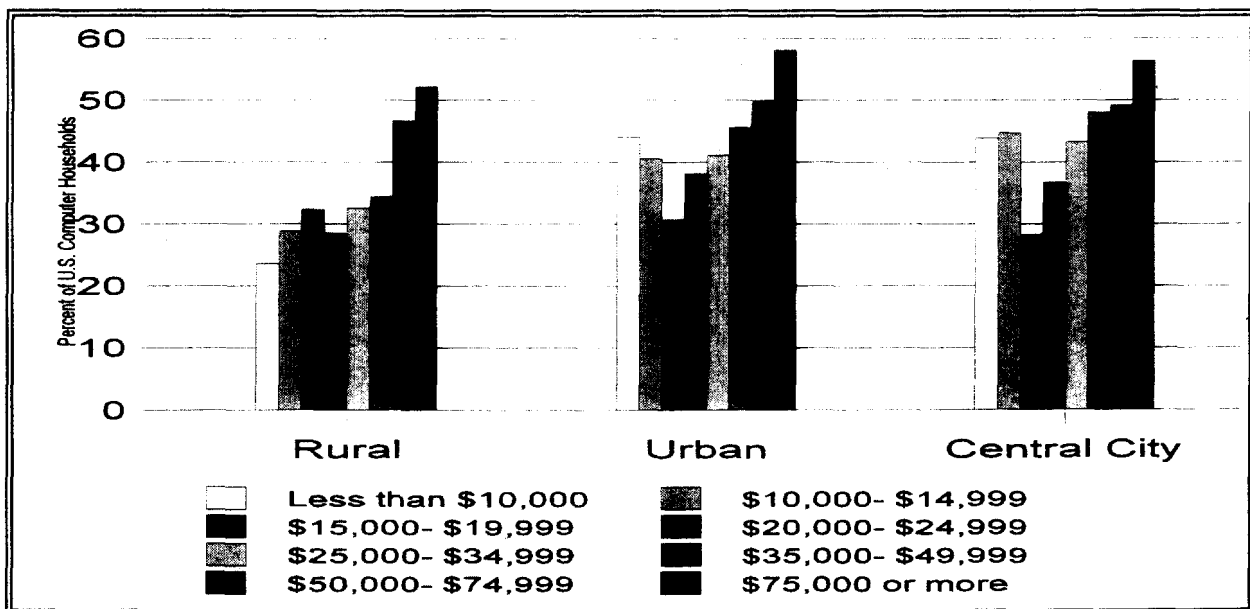


Chart 3

Source: National Telecommunications and Information Administration and U.S. Census Bureau, U.S. Department of Commerce, using November 1994 Current Population Survey and Computer Ownership/Usage Supplement.

Table 4: Percent of U.S. Households with a Telephone
By Race
By Rural, Urban, and Central City

	Rural	Urban	Central City
White	95.4	96.2	95.2
Black	80.9	86.3	86.2
Hispanic	79.0	86.4	84.9
American Indian, Aleut, Eskimo	75.5	90.0	90.3
Asian or Pacific Islander	97.1	95.8	95.3
Other	81.8	91.0	88.3

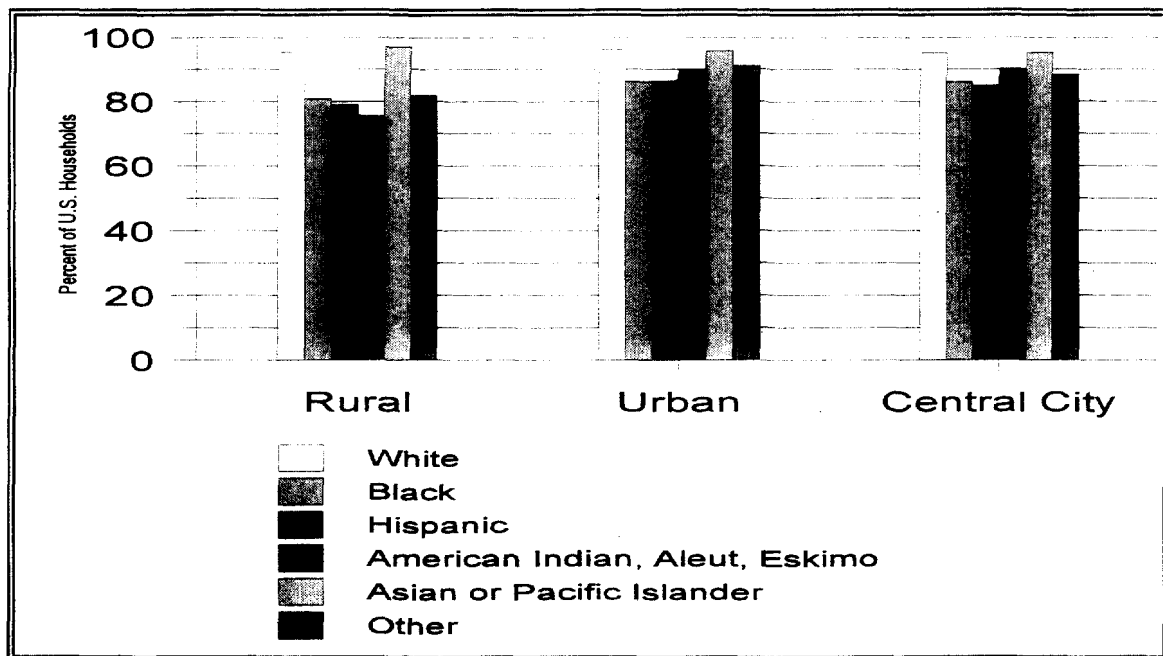


Chart 4

Source: National Telecommunications and Information Administration and U.S. Census Bureau, U.S. Department of Commerce, using November 1994 Current Population Survey and Computer Ownership/Usage Supplement.

Table 5: Percent of U.S. Households with a Computer
by Race
By Rural, Urban, and Central City Areas

	Rural	Urban	Central City
White	24.6	30.3	29.4
Black	6.4	11.8	10.4
Hispanic	12.0	13.2	10.5
American Indian, Aleut, Eskimo	15.3	23.7	25.5
Asian or Pacific Islander	33.7	39.5	35.9
Other	11.8	33.7	27.2

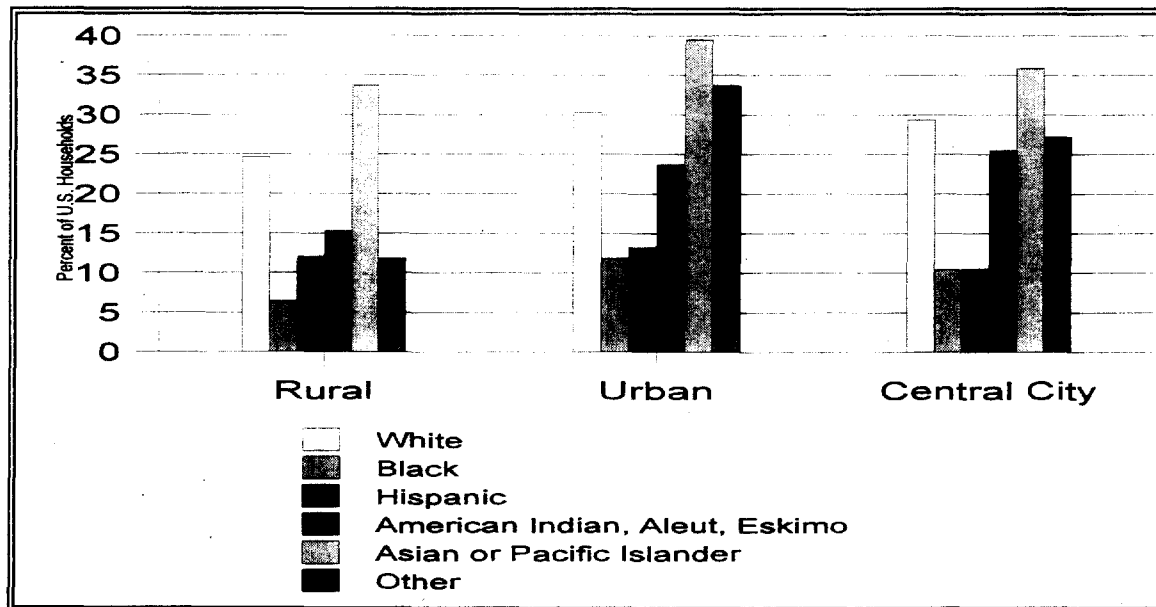


Chart 5

Source: National Telecommunications and Information Administration and U.S. Census Bureau, U.S. Department of Commerce, using November 1994 Current Population Survey and Computer Ownership/Usage Supplement.

Table 6: Percent of U.S. Computer Households with a Modem
By Race
By Rural, Urban, and Central City Areas

	Rural	Urban	Central City
White	40.2	48.6	49.7
Black	41.7	41.2	37.6
Hispanic	45.0	42.3	36.0
American Indian, Aleut, Eskimo	28.3	44.9	35.4
Asian or Pacific Islander	26.7	45.9	44.1
Other	33.4	43.8	28.2

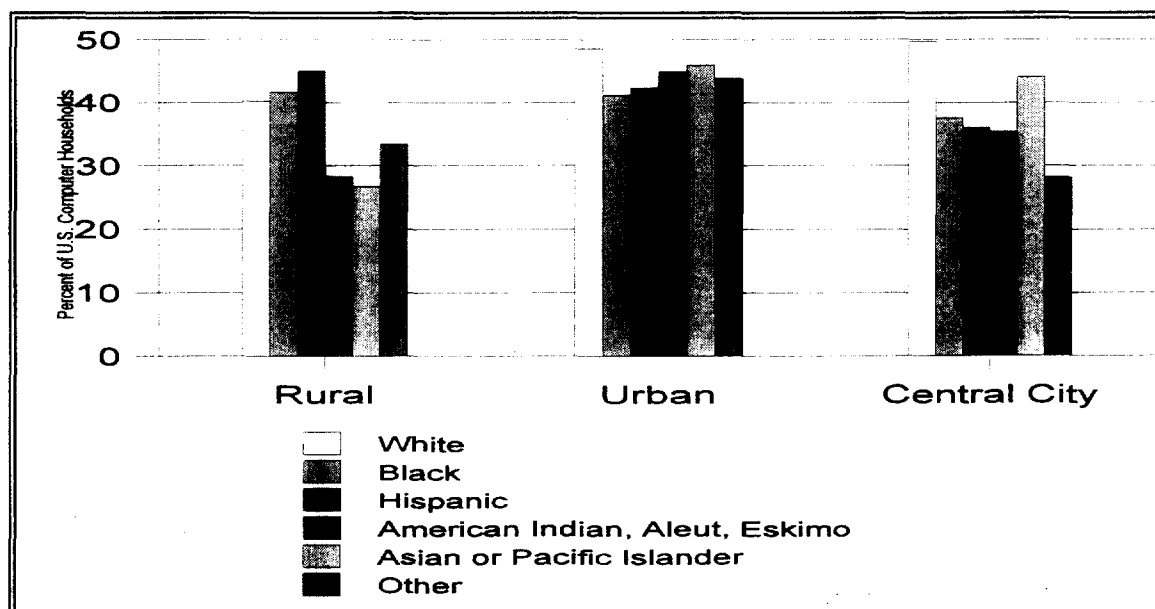


Chart 6

Source: National Telecommunications and Information Administration and U.S. Census Bureau, U.S. Department of Commerce, using November 1994 Current Population Survey and Computer Ownership/Usage Supplement.

Table 7: Percent of U.S. Households with a Telephone
By Age
By Rural, Urban, and Central City Areas

	Rural	Urban	Central City
Under 25 years	77.2	85.6	85.1
25-34 years	89.6	91.3	89.3
35-44 years	94.3	93.9	91.4
45-54 years	96.1	95.2	93.1
55 years and older	96.4	96.2	95.2

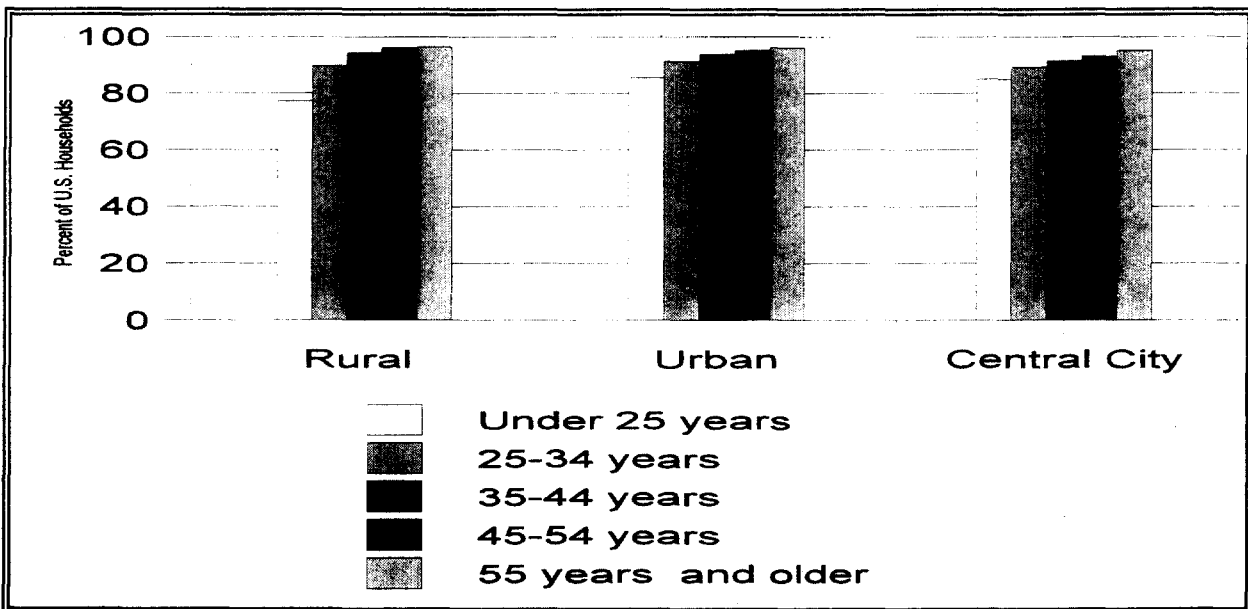


Chart 7

Source: National Telecommunications and Information Administration and U.S. Census Bureau, U.S. Department of Commerce, using November 1994 Current Population Survey and Computer Ownership/Usage Supplement.

Table 8: Percent of U.S. Households with a Computer
By Age
By Rural, Urban, and Central City Areas

	Rural	Urban	Central City
Under 25 years	12.3	20.7	21.0
25-34 years	22.3	27.8	25.0
35-44 years	34.7	36.6	31.4
45-54 years	32.5	36.8	31.8
55 years and older	11.9	13.8	12.0

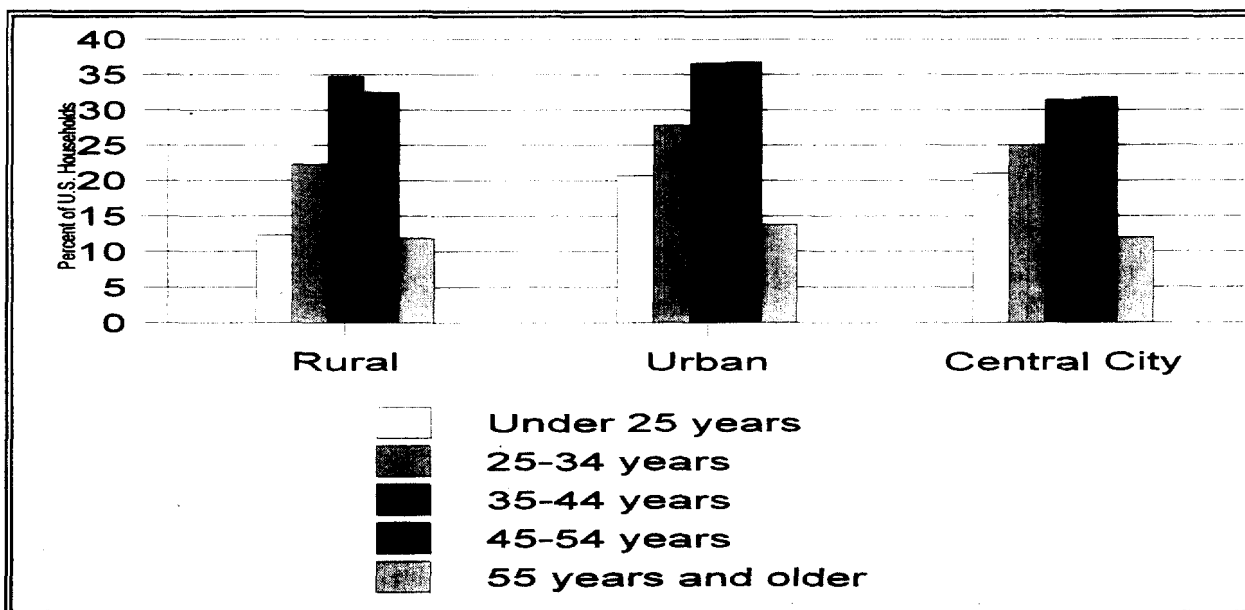


Chart 8

Source: National Telecommunications and Information Administration and U.S. Census Bureau, U.S. Department of Commerce, using November 1994 Current Population Survey and Computer Ownership/Usage Supplement.

Table 9: Percent of U.S. Computer Households with a Modem
By Age
By Rural, Urban, and Central City Areas

	Rural	Urban	Central City
Under 25 years	27.4	44.4	46.6
25-34 years	44.0	52.3	51.0
35-44 years	41.5	47.6	48.2
45-54 years	38.0	48.4	47.9
55 years and older	38.4	41.7	39.2

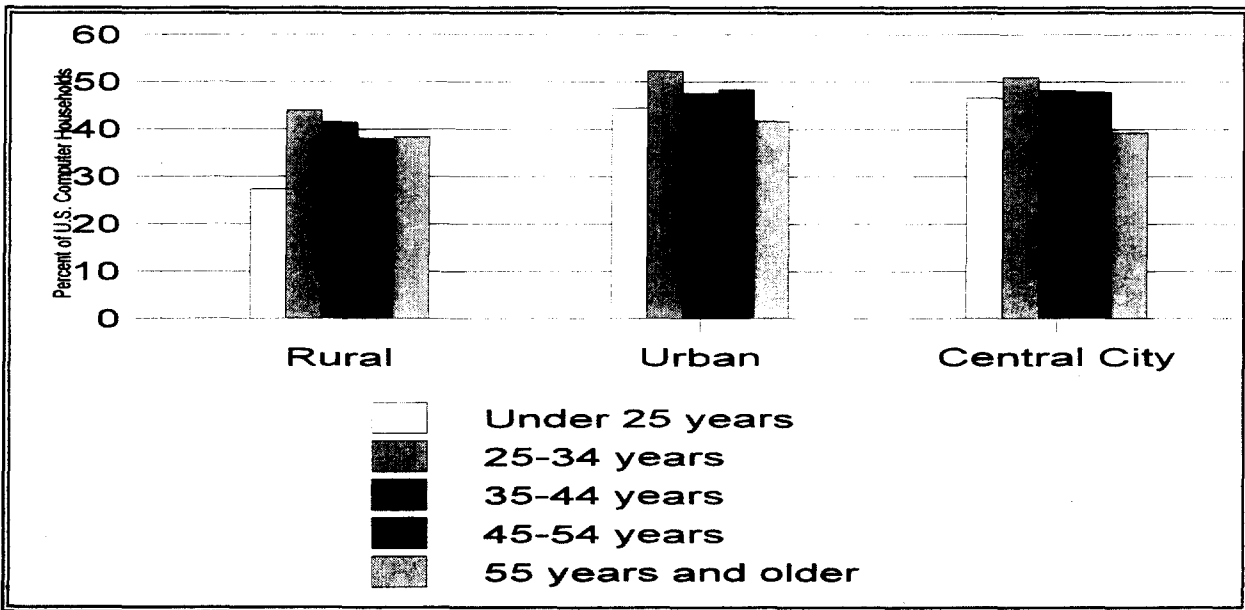


Chart 9

Source: National Telecommunications and Information Administration and U.S. Census Bureau, U.S. Department of Commerce, using November 1994 Current Population Survey and Computer Ownership/Usage Supplement.